

ABSTRACT

The invention provides an optical communication system (10) comprising a plurality of mutually interconnected bi-directional optical waveguide rings (20, 30, 40, 50, 60) in which radiation modulated with communication traffic propagates. The radiation is partitioned into 32 distinct wavebands. Interfaces (70, 80, 90, 100, 110, 120) are included in the system (10) where communication traffic propagating in the rings transfers from one ring to another. Each interface (70) is capable of providing an all-optical waveband reconfigurable communication link between the rings (20, 30, 40, 50, 60). At each interface (70), conversion of optical radiation to corresponding electrical signals is not required when transferring communication traffic from one ring to another, thereby providing the system (10) with a potentially larger communication bandwidth compared to conventional optical communication systems. If required, the interfaces (70, 80, 90, 100, 110, 120) can include one or more of regenerative amplification (440, 850, 852, 854, 856, 858, 860, 862, 864) and wavelength-switching transponders (1332, 1410).

Figure 1 should accompany the abstract.